# Overview

1.1 Short description ........................................ 3
1.2 Week-by-week summary ................................... 3
1.3 Basic texts .................................................. 3
1.4 Methods of assessment .................................... 4
1.5 Teaching methods .......................................... 4
1.6 Workload ..................................................... 4
1.7 Prerequisites ................................................ 4

# Aims, objectives and assessment

2.1 Aims .......................................................... 4
2.2 Objectives ................................................... 5
2.3 Learning outcomes ......................................... 5
2.4 Coursework .................................................. 5

# Schedule and syllabus

3.1 Teaching schedule ......................................... 6
3.2 Practical Groups ........................................... 6
3.3 Detailed week-by-week syllabus ........................... 6

# Online resources

4.1 Libraries and other resources ............................. 11
4.2 Attendance .................................................. 11
4.3 Information for intercollegiate and interdepartmental students ...................................................... 11
4.4 Dyslexia ...................................................... 11
4.5 Feedback .................................................... 11
4.6 Health and safety ........................................... 12

# APPENDIX A: POLICIES AND PROCEDURES 2015-16 (PLEASE READ CAREFULLY)

This document and other resources are available from the course website:
http://moodle.ucl.ac.uk/course/view.php?id=3477
1 Overview

1.1 Short description

This course explores both the theoretical issues and practical methods associated with using Geographical Information Systems (GIS) for archaeological research. This handbook contains information about the content and administration of the course. Queries about its objectives, structure, content, assessment or organisation should be directed to the Course Co-ordinator. Additional resources pertaining to this course in particular can be found on the course’s Moodle pages (http://moodle.ucl.ac.uk/course/view.php?id=3477). Further general information can be found at http://www.ucl.ac.uk/archaeology/handbook/common/ and in the general MA/MSC handbook. It is your responsibility to read and act upon this information, which relates to originality, submission and grading of coursework; disabilities; communication; attendance; and feedback.

1.2 Week-by-week summary

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Session</th>
<th>Subject</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>7th Oct</td>
<td>1</td>
<td>A Rough Guide to GIS</td>
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<tr>
<td>2</td>
<td>14th Oct</td>
<td>2</td>
<td>Data Structures and Geodesy</td>
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<tr>
<td>3</td>
<td>21st Oct</td>
<td>3</td>
<td>Vector Data: Acquisition and Manipulation</td>
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<tr>
<td>4</td>
<td>28th Oct</td>
<td>4</td>
<td>Operations for Vector Data</td>
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<tr>
<td>5</td>
<td>4th Nov</td>
<td>5</td>
<td>Raster Data: Acquisition and Manipulation</td>
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<td>6</td>
<td>11th Nov</td>
<td>5</td>
<td>Reading week</td>
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<tr>
<td>7</td>
<td>18th Nov</td>
<td>6</td>
<td>Operations for Raster Data</td>
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<tr>
<td>8</td>
<td>25th Nov</td>
<td>7</td>
<td>Analysing Patterns in Spatial Data</td>
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<tr>
<td>9</td>
<td>2nd Dec</td>
<td>8</td>
<td>Advanced Vector and Raster Functions</td>
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<tr>
<td>10</td>
<td>9th Dec</td>
<td>9</td>
<td>Maps and Digital Cartography</td>
</tr>
<tr>
<td>11</td>
<td>16th Dec</td>
<td>10</td>
<td>Review and Prospect</td>
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1.3 Basic texts


1.4 Methods of assessment

This course is assessed on the basis of two pieces of coursework: (i) a project, consisting of three individual practical assessments, the sum of which contribute 50% to your final grade; (ii) a written essay, no more than 3000 words in length, also worth 50% of your final mark. The topics and deadlines for each assessment are specified below. If you are unclear about the nature of an assignment, they should contact me. I will be willing to discuss an outline of your approach to the assessment, provided this is planned suitably in advance of the submission date.

1.5 Teaching methods

The course is taught by a mixture of lectures, practical sessions and group discussion. Students will be expected to have done the necessary tutorial revision in order to continue to follow the practical session in class and to contribute actively to discussion.

1.6 Workload

There will be 20 hours of dedicated lectures and practicals for this course, and students are expected to undertake around 70 hours of tutorial revision and further reading for the course, plus 60 hours preparing for and producing the assessed work. This adds up to a total workload of approximately 150 hours.

1.7 Prerequisites

There are no formal prerequisites for this course.

2 Aims, objectives and assessment

2.1 Aims

The course aims to provide an:

- an introduction to the principles of archaeological GIS and
- an introduction to the fundamentals of GIS
- an insight into the ways GIS is applied in archaeology
- a practical awareness of the the techniques use to acquire, manage and visualise spatial data
- a familiarity with a range of computer software, particularly ArcGIS
- a grounding for those wishing to take the more advanced GIS II (ARCLG091) course
2.2 Objectives

On successful completion of this course a student:

- understand the theoretical implications that GIS and spatial analysis bring to archaeology as analytical and interpretative aids,
- be familiar with ArcGIS and ArcInfoWorkstation
- be able to navigate spatial data and build a GIS Project
- construct effective spatial and attribute queries
- be familiar with data generalisation and statistical pattern recognition
- be able to digitise vector datasets and conduct raster interpolations (e.g. DEMs)
- be familiar with viewsheds and distance functions
- construct effective map layouts

2.3 Learning outcomes

In meeting these objectives you will also be able to demonstrate the following generic learning outcomes:

- an understanding of the core principles of GIS;
- the ways in which spatial data can be acquired and properly structured within a GIS system;
- the appropriate ways of visualising spatial data, and
- an awareness and some practical experience of the range of analytical possibilities GIS offers for interpreting archaeological spatial data.

2.4 Coursework

2.4.1 Assessment tasks

This course is assessed entirely via a notebook of practical work and an essay. The notebook involves three separate practical tasks whose deadlines will be roughly at fortnightly intervals throughout the term:

- Project construction. Using the downloaded topographic and archaeological survey files, edit them for use in GIS using ArcMap. Then create an appropriately structured ArcMap document using the edited data.
- Basic analysis. Establish what patterning there is, if any in the distribution of archaeological sites in the study region.
- Presentation. Produce a series of appropriately edited maps displaying the archaeological and topographic features of the study area.
The essay due on Monday, January 11th, 2016. It should strictly be between 2,850 and 3,150 in length. If students are unclear about the nature of an assignment, they should discuss this with the Course Co-ordinator. Students are not permitted to re-write and re-submit essays in order to try to improve their marks. However, students may be permitted, in advance of the deadline, to submit for comment a brief outline of the assignment. The Course Co-ordinator is willing to discuss an outline of the student’s approach to the assignment, provided this is planned suitably in advance of the submission date. The suggested essay topics are:

- What types of of data structure are necessary for a large cultural resource management project such as a sites and monuments (or heritage environment) record. Please consider both desktop and online provisions, as well as issues of data interoperability.
- Discuss ONE aspect of GIS-led analysis that you think will have the most impact on archaeology in the next decade. Explain why its potential has NOT yet been realised fully and make sure to discuss what efforts are necessary to develop it more effectively in the future.
- ‘GIS is only useful to archaeology as a means of managing spatial data and identifying spatial patterns; it cannot be used to explain past processes or behaviours’. Explain why you agree or disagree with this statement.

2.4.2 Word Length

The following should not be included in the word-count: title page, contents pages, lists of figure and tables, abstract, preface, acknowledgements, bibliography, lists of references, captions and contents of tables and figures, appendices.

Penalties will only be imposed if you exceed the upper figure in the range. There is no penalty for using fewer words than the lower figure in the range: the lower figure is simply for your guidance to indicate the sort of length that is expected.

3 Schedule and syllabus

3.1 Teaching schedule

The course will be taught in Term 1 and classes will be held from 9-12pm on Wednesday in cluster room 501 of the Institute of Archaeology.

3.2 Practical Groups

Students following this course attend as a single group for the course lectures from 9-10am and then typically split into two groups for practical sessions that run over the following two hours. Further details about the arrangements for practical sessions will be provided at the first session.

3.3 Detailed week-by-week syllabus

The syllabus below provides a short summary of the main themes covered in each weekly session as well as a range of preliminary readings. The course places an emphasis on applied skills and hence, in addition to the general and weekly readings, students are also expected to work through four course tutorials designed to reinforce the skills learnt in class.
Session 1: A Rough Guide to GIS

This first week offers an introduction to GIS, including its history as a technique and discipline, its achievements so far and its current role in archaeology.

Practical  Introduction to ArcGIS, navigation, basic data manipulation.

Essential reading


Session 2: Data Structures and Geodesy

We consider more of the basic principles underlying the use of GIS, concentrating on the types of data model currently used to describe spatial phenomena. We then explore the importance of geodesy and geographic coordinate systems.

Practical  Moving between coordinate systems. Introduction to the Kythera dataset and to vector data models. Building ArcGIS projects. Principles for manipulating symbology.

Essential reading


Session 3: Vector Data: Acquisition and Manipulation

We focus more closely on one type of data model (vector), exploring its main advantages, disadvantages, how it is acquired and the contexts in which it is most commonly used.

Practical  Heads-up and tablet digitising, attribute editing, data cleaning, metadata
Essential reading


Bell, T. and Bevan, A. 2004 A Survey of GIS Standards for the English Archaeological Record Community, Report Commissioned by English Heritage. URL: http://discovery.ucl.ac.uk/149398/ (For now, read mainly for evidence of the predominance of vector datasets in UK archaeological records)

Hope, S. and Hunter, G.J. 2007 ‘Testing the effects of positional uncertainty on spatial decision-making’ International Journal of Geographical Information Science 21.6: 645-665.(Read mainly with regard to contemporary concerns over accuracy in vector datasets, particularly GPS).[UCL eJournals]

Session 4: Operations for Vector Data

We explore how to go about asking interesting questions of information recorded in a GIS, particularly using vector data. In particular, we consider the great possibilities created by the combination of spatial and aspatial queries. Data generalisation is a related topic addressing the formal means by which we summarise, present and make sense of complex datasets.

Practical Importing spreadsheet data, one-to-one attribute joins, spatial joins, many-to-one relations, attribute and spatial queries.

Essential reading


Session 5: Raster Data: Acquisition and Manipulation

We focus more closely on raster data models, addressing how they are acquired and their contrasting strengths and weaknesses when compared to vector data.

Practical DEM construction and derivative surfaces.

Essential reading


Session 6: Operations for Raster Data

Raster data can be a particularly powerful way of approaching spatial questions because of its support for a range of arithmetic, boolean, relational and zonal operators. We consider how such procedures have been used within GIS applications both in general and with particular regard to archaeological research.

Practical Map algebra, neighbourhood statistics, filtering, histograms

Essential reading


Session 7: Analysing Patterns in Spatial Data

The formal analysis of spatial patterns is one of the great strengths of GIS, but one often ignored in the rush for more flashy GIS functionality. Here we consider the types of statistical treatment often used on zonal and point data, as well as the special treatment required for spatial data, which is often not provided by classical statistical models.

Practical Customising ArcGIS through VBA scripts, point pattern analysis, data export to spreadsheet packages, chi-square tests and statistical charts.

Essential reading


Bevan, A. 2002 'The Rural Landscape of Neopalatial Kythera: a GIS perspective', Journal of Mediterranean Archaeology 15.2: 217-256. (already a bit dated, but an introduction to the part of the Greek island of Kythera that is considered in the third practical assessment and to some examples of landscape-scale pattern analysis) [IoA Pers, or from me directly]

Orton, C. 2000 Sampling in Archaeology, Cambridge: Cambridge University Press. (Read early chapters for a view of spatial sampling and its importance). [INST ARCH AK 10 ORT]
Session 8: Advanced Vector and Raster Functions

This week tackles more advanced aspects of route- and region-based modelling, offering an introduction to topics such as hydrological models, viewshed analysis and cost surfaces that are treated in greater detail in the companion course GIS2 (ARCLG091).

Practical  An introduction to viewshed analysis, cost surfaces and least cost paths.

Essential reading


Session 9: Maps and Digital Cartography

This week we consider the role of cartography in recent human history, the principles behind modern maps, and the implications of new technologies such as internet-based map servers and collaborative mapping.

Practical  The process of producing map layouts for printing or still digital capture, according to proper cartographic principles. Also the incorporation of 3D views.

Essential reading


Dent, B.D. 2009 Cartography: Thematic Map Design, London: McGraw-Hill. [INST ARCH ISSUE DESK; GEOGRAPHY QUARTOS D 40 DEN] (Worth browsing several of the chapters for the main issues)


Session 10: Review and Prospect

The final week is an opportunity to review the topics covered by the course and also offers a chance to discuss in more detail some concrete strategies for addressing particular archaeological questions using GIS. We also discuss the future of GIS within the discipline of archaeology. There are no required readings, but students are encouraged to ask the coordinator for further reading on specific topics either ahead of or during the session.
Practical Review of practical skills based on a series of typical GIS workflows in archaeology.

4 Online resources

The full UCL Institute of Archaeology coursework guidelines are given here: http://www.ucl.ac.uk/archaeology/handbook/common/. The full text of this handbook is available here (includes clickable links to Moodle and online reading lists if applicable) http://www.ucl.ac.uk/silva/archaeology/course-info/ and on the course website: http://moodle.ucl.ac.uk/course/view.php?id=3477.

5 Additional information

5.1 Libraries and other resources

In addition to the Library of the Institute of Archaeology (5th floor), other libraries in UCL with holdings of particular relevance to this course are the Science Library (D.M.S. Watson building on the central UCL site) and the Environmental Studies Library in Wates House on Gordon Street. You may also wish to consult the list of electronic journals available through UCL (http://metalib-a.lib.ucl.ac.uk:8331/V?func=find-ej-1). A full list of UCL libraries and their opening hours is provided at http://www.ucl.ac.uk/library/.

The University of London Senate House Library (http://www.ull.ac.uk/) also has holdings which may be relevant to this course.

5.2 Attendance

A register will be taken at each class. If you are unable to attend a class, please notify the lecturer by email. Departments are required to report each student’s attendance to UCL Registry at frequent intervals throughout each term. Students are expected to attend at least 70% of classes.

5.3 Information for intercollegiate and interdepartmental students

Students enrolled in Departments outside the Institute of Archaeology should collect hard copy of the Institute’s coursework guidelines from the Academic Administrator’s office (Room 411A).

5.4 Dyslexia

If you have dyslexia or any other disability, please make your lecturers aware of this. Please discuss with your lecturers whether there is any way in which they can help you. Students with dyslexia are reminded to indicate this on each piece of coursework.

5.5 Feedback

In trying to make this course as effective as possible, we welcome feedback from students during the course of the year. All students are asked to give their views on the course in an anonymous questionnaire which will be circulated at one of the last sessions of the course. These questionnaires are taken seriously and help the Course Co-ordinator to develop the course. The summarised responses are considered by the Institute’s Staff-Student Consultative Committee, Teaching Committee, and by the Faculty Teaching Committee.
If you are concerned about any aspect of this course we hope you will feel able to talk to the Course Co-ordinator, but if you feel this is not appropriate, you should consult your Personal Tutor, the Academic Administrator (Judy Medrington), or the Chair of Teaching Committee (Dr. Karen Wright).

5.6 Health and safety

Students enrolled on this course are particularly reminded of the measures that should be taken to reduce possible discomfort arising from the extended use of computer workstations. See the advice provided on the web at http://www.ucl.ac.uk/efd/safety_services_www/guidance/dse/index.htm.

6 APPENDIX A: POLICIES AND PROCEDURES 2015-16 (PLEASE READ CAREFULLY)

This appendix provides a short précis of policies and procedures relating to courses. It is not a substitute for the full documentation, with which all students should become familiar. For full information on Institute policies and procedures, see the following website: http://wiki.ucl.ac.uk/display/archadmin

For UCL policies and procedures, see the Academic Regulations and the UCL Academic Manual: http://www.ucl.ac.uk/srs/academic-regulations http://www.ucl.ac.uk/academic-manual/

6.0.1 GENERAL MATTERS

ATTENDANCE: A minimum attendance of 70% is required, except in case of illness or other adverse circumstances which are supported by medical certificates or other documentation. A register will be taken at each class. If you are unable to attend a class, please notify the lecturer by email.

DYSLEXIA: If you have dyslexia or any other disability, please discuss with your lecturers whether there is any way in which they can help you. Students with dyslexia should indicate it on each coursework cover sheet.

6.0.2 COURSEWORK

SUBMISSION PROCEDURES: You must submit a hardcopy of coursework to the Co-ordinator’s pigeon-hole via the Red Essay Box at Reception (or, in the case of first year undergraduate work, to room 411a) by stated deadlines. Coursework must be stapled to a completed cover-sheet (available from IoA website; the rack outside Room 411A; or the Library). You should put your Candidate Number (a 5 digit alphanumeric code, found on Portico. Please note that this number changes each year) and Course Code on all coursework. It is also essential that you put your Candidate Number at the start of the title line on Turnitin, followed by the short title of the coursework (example: YBPR6 Funerary practices).

LATE SUBMISSION: Late submission is penalized in accordance with UCL regulations, unless permission for late submission has been granted. The penalties are as follows: i) A penalty of 5 percentage marks should be applied to coursework submitted the calendar day after the deadline (calendar day 1); ii) A penalty of 15 percentage marks should be applied to coursework submitted on calendar day 2 after the deadline through to calendar day 7; iii) A mark of zero should be recorded for coursework submitted on calendar day 8 after the deadline.
through to the end of the second week of third term. Nevertheless, the assessment will be considered to be complete provided the coursework contains material than can be assessed; iv) Coursework submitted after the end of the second week of third term will not be marked and the assessment will be incomplete.

GRANTING OF EXTENSIONS: New UCL-wide regulations with regard to the granting of extensions for coursework have been introduced with effect from the 2015-16 session. Full details will be circulated to all students and will be made available on the IoA intranet. Note that Course Coordinators are no longer permitted to grant extensions. All requests for extensions must be submitted on a new UCL form, together with supporting documentation, via Judy Medrington’s office and will then be referred on for consideration. Please be aware that the grounds that are now acceptable are limited. Those with long-term difficulties should contact UCL Student Disability Services to make special arrangements.

TURNITIN: Date-stamping is via Turnitin, so in addition to submitting hard copy, you must also submit your work to Turnitin by midnight on the deadline day. If you have questions or problems with Turnitin, contact ioa-turnitin@ucl.ac.uk.

RETURN OF COURSEWORK AND RESUBMISSION: You should receive your marked coursework within four calendar weeks of the submission deadline. If you do not receive your work within this period, or a written explanation, notify the Academic Administrator. When your marked essay is returned to you, return it to the Course Co-ordinator within two weeks. You must retain a copy of all coursework submitted.

WORD LENGTH: Essay word-lengths are normally expressed in terms of a recommended range. Not included in the word count are the bibliography, appendices, tables, graphs, captions to figures, tables, graphs. You must indicate word length (minus exclusions) on the cover sheet. Exceeding the maximum word-length expressed for the essay will be penalized in accordance with UCL penalties for over-length work.

CITING OF SOURCES and AVOIDING PLAGIARISM: Coursework must be expressed in your own words, citing the exact source (author, date and page number; website address if applicable) of any ideas, information, diagrams, etc., that are taken from the work of others. This applies to all media (books, articles, websites, images, figures, etc.). Any direct quotations from the work of others must be indicated as such by being placed between quotation marks. Plagiarism is a very serious irregularity, which can carry heavy penalties. It is your responsibility to abide by requirements for presentation, referencing and avoidance of plagiarism. Make sure you understand definitions of plagiarism and the procedures and penalties as detailed in UCL regulations: http://www.ucl.ac.uk/current-students/guidelines/plagiarism

6.0.3 RESOURCES

MOODLE: Please ensure you are signed up to the course on Moodle. For help with Moodle, please contact Nicola Cockerton, Room 411a (nicola.cockerton@ucl.ac.uk).